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THE FORMATIVE YEARS: UNICEF'S WORK ON MEASURING EARLY CHILDHOOD DEVELOPMENT

Early childhood, which spans the period up to 8 years of age, is critical for cognitive, social, emotional and physical development. During these years, a child's newly developing brain is highly plastic and responsive to change as billions of integrated neural circuits are established through the interaction of genetics, environment and experience. Optimal brain development requires a stimulating environment, adequate nutrients and social interaction with attentive caregivers. Unsafe conditions, negative interactions and lack of educational opportunities during these early years can lead to irreversible outcomes, which can affect a child's potential for the remainder of his or her life.

The right to a child's development has been accepted and embraced by the international community. The **Convention on the Rights of the Child** clearly highlights the importance of early childhood development (ECD), stating that a child has a right to develop to "the maximum extent possible" (Article 6) and that "States Parties recognize the right of every child to a standard of living adequate for the child's physical, mental, spiritual, moral and social development" (Article 27).

Evidence from multiple disciplines has confirmed that investing in early childhood development is one of the most cost-effective ways to improve educational achievement and to increase skills, capabilities, and productivity. Based on this new research and an enhanced understanding of the complete well-being of the child, early childhood development is increasingly being put on the agenda for children's rights. Ensuring the healthy cognitive, social and emotional development of young children merits the highest priority for the sake of raising healthy children worldwide.

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MEASURING EARLY CHILDHOOD DEVELOPMENT

UNICEF monitors and reports on a variety of domains of child development and well-being including, for example, nutritional status, immunization and parenting practices. While data for these areas are available for many countries, there is no systematic reporting on other important aspects of early childhood development. UNICEF has been working with countries to close this knowledge gap and to develop specific indicators in three vital areas:

- quality of care;
- access to early childhood care and education;
- overall developmental status of children

Data in all three of these areas are being collected through the UNICEF-supported Multiple Indicator Cluster Surveys (MICS), which has a standard module on early childhood development. Some Demographic and Health Surveys (DHS) and other national household surveys have also collected information on early childhood development typically with the standard, or modified, versions of the MICS module. Along with existing evidence about the developing brain, data from MICS and other household surveys provide a compelling case for more effective, better resourced and targeted interventions in early childhood development.

Beginning with the fourth round of MICS (MICS4), the early childhood development indicators were consolidated into a single early childhood development module included in the questionnaire for children under 5 years of age.[1] The module is administered to mothers or primary caregivers of children under the age of 5 (0 to 59 months). Comparable data collected through MICS are currently available for around 60 low-and middle-income countries.

Quality of care

A young child's home environment plays a key role in determining his or her chances for survival and development.[2] Optimal conditions include a safe and well-organized physical environment, opportunities for children to play, explore and discover, and the presence of developmentally appropriate objects, toys and books.[3]

Some of the ECD indicators included in MICS capture the conditions of care within a child's home environment, including the availability/variety of learning materials in the home, adult and paternal support for learning and school readiness, and non-adult care. Learning materials include both books and play materials defined as household objects, objects found outside (such as sticks, rocks, shells, etc.), home-made toys and manufactured toys. Activities that promote learning and school readiness include: reading books to the child; telling stories to the child; singing songs to the child; taking the child outside the home; playing with the child; and naming, counting or drawing things with the child.

The main indicator definitions are:

Learning materials

- Percentage of children under 5 who have three or more children's books.
- Percentage of children under 5 with two or more playthings.

Support for learning

- Percentage of children aged 36-59 months with whom an adult has engaged in four or more activities to promote learning and school readiness in the past three days.
- Percentage of children aged 36-59 months whose father has engaged in one or more activities to promote learning and school readiness in the past three days.

Inadequate care

- Percentage of children under 5 left alone or in the care of another child younger than 10 years of age for more than one hour at least once in the past week.

Early childhood care and education

Access to good-quality care and education programmes outside the home are important in providing children with the basic cognitive and language skills they need to flourish in school. Such programmes can also help foster social competency and emotional development. In fact, it is widely recognized that early childhood care and education form the foundation of a high-quality basic education.

Questions on attendance in organized early childhood care and education were first collected in the birth registration and early learning module during the second round of MICS (MICS2). For the third round of MICS (MICS3), conducted mainly in 2005 and 2006, information about preschool attendance was again collected in the birth registration and early learning module. Beginning with the fourth round of MICS (MICS4), questions on attendance in early childhood care and education were included in the consolidated early childhood development module included in the questionnaire for children under 5.

Mothers or primary caregivers are asked whether each child aged 36 to 59 months living in the household is currently attending any organized early learning or early childhood education programme, whether public or private, and for how many hours per week. In some cases, the question is customized to make specific reference to relevant country examples of early childhood education programmes.

Developmental status of children

Early childhood development is multidimensional, encompassing several aspects of a child's well-being: physical, social, emotional and mental. In general, development takes place in a series of predictable and common stages: Children become progressively more independent and learn increasingly advanced skills and capacities as they grow older. However, children develop at different speeds and may reach developmental milestones at different times. What is considered normal child development also varies across cultures and environments, since expectations and parenting strategies may differ not only among countries but also among cultural, ethnic or religious groups within the same country.

In 2007, UNICEF commissioned a review of existing tests, measures and items used to establish the developmental status of children aged 0 to 6 years, with a specific focus on those tested cross-culturally. This work led to a recommendation to create a set of age-specific indicators in five developmental domains: motor, language, cognitive, social-emotional and learning. In early 2008, a validation study of the recommended items was conducted with the goal of producing a reliable and feasible set of items to be used in the MICS.

The validation study was conducted in two countries: Jordan and the Philippines, in close collaboration with local UNICEF offices. Data were collected from approximately 900 children aged 3 to 6 years in each of the two countries, with an even distribution between boys and girls. Both urban and rural

regions of each country were also represented. A subsample of the total was also used for reliability testing (both test-retest and inter-rater reliability).

The recommended set of questions was tested alongside several other validated tools, including, for example, the Early Development Instrument,[4] and the Strengths and Difficulties Questionnaire.[5] All items used in the study were translated into the appropriate local languages.

A series of factor analyses were also conducted to detect the underlying factors and item integrity (using all variables from each of the various instruments). These factor analyses resulted in a long (48-item) and short (18-item) set of items covering six developmental domains: language, cognitive, physical, social, emotional and approaches to learning, with each demonstrating excellent reliability and validity. Items are based on benchmarks that children would be expected to have reached if they are developing like the majority of children of the same age.

Following discussion and consultation between UNICEF and a broad group of experts, the 18-item draft early childhood development index (ECDI) was field tested in February 2009 in Mombasa, Kenya.

After the field work experience in Kenya, further revisions were made to the draft index and the number of items was reduced from 18 to 10. The original language and cognitive domains were collapsed into one domain (literacy-numeracy), ▶

consisting of three items, and the social and emotional domains were combined (social-emotional), consisting of three items. The two remaining domains, physical and learning, consist of two items each.

The four domains are defined as follows:

- **Literacy-numeracy:** Children are identified as being developmentally on track if they can do at least two of the following: identify/name at least 10 letters of the alphabet; read at least 4 simple, popular words; and/or know the name and recognize the symbols of all numbers from 1 to 10.

- **Physical:** If the child can pick up a small object with two fingers, like a stick or rock from the ground, and/or the mother/primary caregiver does not indicate that the child is sometimes too sick to play, then the child is regarded as being developmentally on track in the physical domain.

- **Social-emotional:** The child is considered develop-mentally on track if two of the following are true: The child gets along well with other children; the child does not kick, bite or hit other children; and the child does not get distracted easily.

- **Learning:** If the child follows simple directions on how to do something correctly and/or when given something
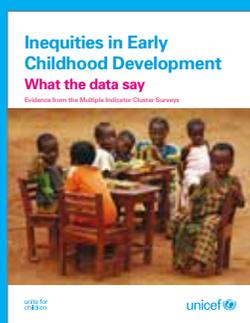
to do, and is able to do it independently, then the child is considered to be developmentally on track in the learning domain.

Response categories for all questions included in the ECDI are: *yes, no and don't know*. The ECDI score is then calculated as the percentage of children aged 36 to 59 months who are developmentally on track in at least three of these four domains. The index is best interpreted within the context of other variables related to support for early childhood development in the home and community.

UNICEF GLOBAL DATABASES FOR EARLY CHILDHOOD DEVELOPMENT

UNICEF maintains global databases on key early childhood development indicators. The main sources of data include nationally representative household surveys, such as the MICS, Demographic and Health Surveys (DHS), and other nationally representative household surveys. These databases are updated annually through a process that draws on data maintained by UNICEF's network of country offices.

Inequities in Early Childhood Development
What the data say
Evidence from the Multiple Indicator Cluster Surveys

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WHERE TO FIND STATISTICS ON EARLY CHILDHOOD DEVELOPMENT

Data collected, compiled and analysed by UNICEF on early childhood development are disseminated in a variety of ways including through the organization's flagship publication, The State of the World's Children, and in thematic data-driven publications, such as the 2012 booklet Inequities in Early Childhood Development: What the data say.

All of the publications, global databases and other resources for ECD statistics can be found on the Early Childhood Development pages of UNICEF's dedicated statistical website: data.unicef.org. The site contains up-to-date global and regional summary analyses and graphics of key results. The MICS module on ECD can also be found here.

[1] Indicator definitions in the third round of MICS (MICS3) differed for some early childhood development indicators. For example, the age group for the two indicators on support for learning (adult and father's engagement) was children under age 5. As such, data on some of the indicators from MICS3 are not directly comparable with data collected in subsequent rounds of MICS for any given country.

[2] Belsky, Jay, et al., 'Socioeconomic Risk, Parenting During the Preschool Years and Child Health Age 6 Years', *European Journal of Public Health*, vol. 17, no. 5, 14 December 2006, pp. 511–512.

[3] Dobrova-Krol, Natasha A., et al., 'Effects of Perinatal HIV Infection and Early Institutional Rearing on Physical and Cognitive Development of Children in Ukraine', *Child Development*, vol. 81, no. 1, January/February 2010, pp. 237–251.

[4] Janus, M., and D. Offord, 'Development and Psychometric Properties of the Early Development Instrument (EDI): A measure of children's school readiness', *Canadian Journal of Behavioral Science*, vol. 39, no. 1, 2007, pp. 1-22.

[5] Goodman, R., 'Psychometric Properties of the Strengths and Difficulties Questionnaire (SDQ)', *Journal of the American Academy of Child and Adolescent Psychiatry*, no. 40, 2001, pp. 1337-1345.

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